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Assessment and Treatment of Depression in Children and Young People in the UK: Comparison of Access to Services and Provision at Two Time Points

Running title: Service Provision for Adolescent Depression

Abstract

Depression in young people is common and impairing. There have been significant service changes in the UK in the last decade, aiming to improve access to evidence-based interventions for depression. However, it is unclear whether youth with depression, firstly, access services and, secondly, receive appropriate interventions. In the current study, anonymised data from child and adolescent mental health services were extracted from a one-year period at two time points (time 1: n=770; time 2: n=733). Firstly, these were compared to prevalence and population data. Secondly, a subsample (n=45 at each time point) was evaluated against NICE guidelines. Approximately a quarter of the expected number of cases (according to population and prevalence data) were seen in the 12 to 18 age group, and only 2% of expected cases were seen in the 0 to 11 age group. This was consistent across time points. Adherence to NICE guidance was mostly good at both time points but there were concerns raised by this evaluation, in particular the use of medication in this population. From time 1 to 2, there was an increase in use of questionnaire measures but a decrease in the correct completion of risk assessments.

Keywords: Depression; Adolescence; Mental Health; Assessment; Intervention

Introduction

Depression in children and young people is a common and recurrent condition. Prevalence rates for depression are thought to be between 1-2% in children and 3-8% in adolescents (Kessler et al., 2012), with a recent meta-analysis reporting a worldwide prevalence rate of 2.6% for any depressive disorder (Polanczyk, Salum, Sugaya, Caye, & Rohde, 2015). Depression can lead to a long-term social maladjustment, with 37.5% experiencing social dysfunction in adulthood, and is a leading risk factor for suicide in youth (Fombonne et al, 2001; Hollon et al., 2002). Under-detection and under-treatment of depression are both major concerns, and are associated with increased healthcare costs (Wright et al., 2016). It is estimated that 75% of youth with mood disorders in the United States (US) go undetected (Coyle et al., 2003) and, of those referred to child and adolescent mental health services (CAMHS) in the United Kingdom (UK), between 28% and 75% do not receive a service (Children's Commissioners Report, 2016). Research underlines the importance of accessing services early, with young people who have not had contact with services at age 14 being seven times more likely to report clinical depression at age 17, compared to peers who were similarly depressed but had contact with services (Neufeld et al, 2017). What is less clear is how many youth with depression access CAMHS, compared to what would be expected according to prevalence rates and, for those that do access CAMHS, whether they receive appropriate assessment and treatment.

Studies on the National Health Service (NHS) in the 1990s indicated great geographical variation in access to treatments and the very slow incorporation of clinical evidence into routine care (Rawlins, 2004). The Department of Health established the National Institute for Clinical Excellence (NICE) in 1999 to coordinate treatment guidelines on a national level. NICE produced guidelines for depression in children and young people in 2005 (updated in 2015) based on systematic reviews of clinical and cost effectiveness (NICE,

2005, 2015). It was hoped that these guidelines would speed transmission of evidence-based practice into clinics, improve standards of care for patients, and reduce inequalities in access to treatments. However, there are no clear systems to monitor compliance, making it difficult to target procedures to increase implementation. Additionally, there are no identified rewards/sanctions for organisations that implement/do not implement the guidelines, which weakens NICE status as a guiding tool (Dent & Sadler, 2002). Previous audits investigating the implementation of NICE guidelines for adults with depression have found a lack of consistent implementation, for example in terms of access to cognitive behavioural therapy (CBT; Rhodes et al, 2010). In CAMHS, significant service changes have occurred over the last decade in an attempt to improve access to treatment for children and young people, for example the introduction of Child and Young People Increasing Access to Psychological Therapies (CYP-IAPT) in 2011. CYP-IAPT is a change programme in the UK, which is delivered by NHS England in partnership with Health Education England. Its aims include increasing outcome monitoring (e.g. symptom monitoring) and improving access to evidence-based therapies.

There have been a number of interventions explored for depression in children and young people but the evidence base is limited. The first line treatment for moderate to severe depression, recommended by NICE, is a specific psychological therapy: CBT, interpersonal psychotherapy (IPT) or shorter-term family therapy (FT). NICE identified that compared to control groups, psychological therapies produce greater gains during treatment and that these are maintained at follow-up, however recent research has mostly found insufficient evidence to recommend a particular psychological therapy (Cox, Callahan, et al., 2014; Goodyer et al., 2016). The use of antidepressant medication in children and young people with depression emerged from its evidence base in adults, and demonstrates a 62-65% improvement in depressive symptoms among children and young people (Bridge et al., 2007). There is some

evidence that combining Fluoxetine and CBT may be most effective in reducing depressive symptoms and preventing relapse, although evidence is limited (Cox, Callahan, et al., 2014; Cox, Fisher, et al., 2014). Medication alone is not recommended for initial treatment due to concerns over unpleasant side effects, poor efficacy, addictive potential and increased suicide risk (Healy, 2003; NICE, 2005, 2015; Springer, Rubin, & Beevers, 2011; Wright et al., 2014).

Understanding whether children and young people with depression are gaining access to services and receiving the recommended interventions (and whether this has improved over time) is crucial to guide policy and service innovation. Regular evaluation of improvement also allows the development of effective approaches. The current study consisted of two parts. Both are conducted at two time points, one falling before and one falling after the introduction of CYP-IAPT.

Part 1: Access to services. We investigate how many young people are seen by services, compared to what would be expected from population figures and prevalence rates. Within this sample, we also examine whether the proportion of males to females and ethnicities is consistent with population estimates.

Part 2: Compliance to NICE guidelines. In a smaller subsample of cases (n=45), we perform an in-depth evaluation of the level of adherence to NICE guidelines. We investigate whether guidelines around risk, parental mental health, questionnaire use and psychological and pharmacological intervention are implemented in CAMHS. These guidelines were chosen as there is a clear expectation that these will be documented in the young person's electronic records.

Methods

The Case Register Interactive Service (CRIS) allows authorised researchers regulated access to anonymized electronic case records. Firstly, electronic records for all cases accepted

by CAMHS in a large London NHS Trust were extracted and, secondly, a subsample of these cases was identified. In this NHS Trust, all young people who have had a referral accepted by CAMHS will have an electronic clinical record that can be accessed via CRIS. However, CRIS does not cover cases seen by GPs or paediatricians, or referrals that have not been accepted by CAMHS. This project received approval from the CAMHS Audit Committee and Information Governance Services. As it was an audit and all data was anonymized, ethical approval from a NHS research ethics committee and informed consent procedures were not necessary.

Part 1: Access to services.

Overall Sample. The sample was defined by a participant meeting the following criteria: having an 'event' (an entry in the case notes) between 14th June 2010 and 14th June 2011 (time 1) or 14th of April 2014 and 14th of April 2015 (time 2); having primary or secondary diagnosis that included the search string "depress*" and seen in CAMHS. All records on the electronic system have at least one diagnosis entered by the CAMHS team (usually the psychiatrist) in the "diagnosis" section on the system. Dysthymia was not included in the search as the 2005 NICE guidelines are clear that prevalence rates refer to depression (depressive episode and recurrent depressive episode), stating "that some recommendations will also apply to dysthymia" (National Institute of Clinical Excellence, 2005, p.27). Cases were excluded if the patient was older than 18 years old (as both the Office of National Statistics population estimate data and NICE guidelines are applicable up to age 18); or was not resident in one of the four London boroughs identified.

The expected number of cases of depression was estimated using population data from the Office of National Statistics (ONS) and prevalence data cited in NICE guidelines (2005). Prevalence rates for depression are identified as 1% for pre-pubertal children and 3% for post-pubertal children in the guidelines. It is well documented that prevalence rates

greatly vary for depression in this population with 1% and 3% being very conservative estimates for young people with depression. [For example, large scale studies suggest that prevalence rates of 2.8% for under 13s and between 5.6% and 7.5% for over 13s (Avenevoli, Swendsen, He, Burstein, & Merikangas, 2015; Costello, Erkanli, & Angold, 2006).] However, the sample only included young people seen in CAMHS (and not those seen in primary care). Child ONS data was used for comparison except for ethnicity data, where only adult data was available. Cases that had an 'unknown borough' were hand searched to identify their home addresses and/or the team treating them to allocate them to a borough. Cases that were not resident in one of the four boroughs being audited were excluded to ensure that the sample reflected the ONS population data. 770 cases were identified for inclusion at time 1 and 733 cases at time 2.

Part 2: Adherence to NICE Guidelines

Subsample. A subsample was then extracted at each time point to investigate adherence to NICE guidelines. As evaluation of adherence required detailed searching of the case record, it was not possible to do this for the total sample due to time restraints. At both time points, the overall sample was stratified according to age, sex, ethnicity and borough and then a random sample of 45 cases was taken that matched the spread of data identified by the stratification. As these NICE guidelines were specified as being applicable for youth aged 5 to 18, cases that were under the age of 5 were excluded from the subsample. Additionally, cases were excluded if they were not being treated in CAMHS for depression e.g. patient with a primary diagnosis of an autism spectrum disorder (ASD) and a secondary diagnosis of depression, who was being treated for ASD only.

Search Strategy. To evaluate adherence to NICE guidelines, a search strategy was developed for each target guideline **(see Table 1)**. This ranged from searching fields using

the structure of the electronic records to 'hand searching' through the event notes. The search strategy for each guideline varied according to what could be reasonably expected to be entered into the electronic notes by the clinician. NICE published clinical guidelines for the assessment and treatment of depression in children and young people in 2005. In March 2015, an update to these guidelines was released. Whilst the current report audits against the 2005 guidelines, the recommendations that we report on have not changed in the 2015 guidelines. NICE makes recommendations across tiers 1 to 4 (primary and secondary care) but this audit only considered recommendations made for tiers 2 to 4 as this was the data available.

Data analysis. Descriptive statistics are presented for the data. In addition, we used chi-squared tests to conduct some preliminary analysis on the frequency data to compare time 1 and time 2. A significance level of $\alpha=0.05$ was used throughout.

[INSERT TABLE 1]

Results

Part 1: Number of Cases, Sex Ratio and Ethnicities

Population estimates and estimates for gender and ethnicity were obtained from ONS data specifically for the four London boroughs covered by the audited Trust (please see Table 2 and Table 3). At both time points, 2% of estimated cases of depression in the 0 to 11 age group were seen by services. In the 12 to 18 age group, 29% and 25% of estimated cases were seen at time 1 and time 2, respectively. At time 1, no children under age 5 were seen whereas eight children under age 5 were seen at time 2. At time 1, the sex ratios (female to male) were 1:2 in the under 11s and just over 2:1 in the 12 to 18 age group. These ratios were similar at time 2. However, the sex ratio increased in the 12 to 18 group to be 2.46:1. There were notable differences in the ethnic composition of the population compared to the sample group (see Table 3). According to the percentages, young people with the ethnicity labels

'any other black background' and 'any other ethnic group' accounted for more of the sample than would be expected whilst 'Indian' made up a smaller percentage of the sample than would be expected.

[INSERT TABLE 2 & 3]

Part 2: Compliance with NICE Guidelines.

Table 4 contains a summary of the findings at the two time points.

Risk assessment and evaluation of risk factors. The number of cases that had a risk screen appropriately completed decreased from time 1 to time 2. Whilst this change was significant (according to chi-squared analysis), the majority of cases at time 2 (93%) did have a completed risk assessment elsewhere in their notes. There was also a significant decrease in the number of cases where a full risk screen (for those at higher risk) was completed.

Considering parental mental health and treating in parallel. At both time points, there was evidence that parental mental health for at least one parent had been considered in the majority of cases. The number of mental health issues identified was more at time 2 but this increase was not significant. At time 1, these were mostly recorded as a maternal history of depression (depression, n=9; unspecified, n=3) which was similar at time 2, with improved information about specific diagnoses in mothers (depression, n=15; post-natal depression, n=2; anxiety, n=1; bipolar affective disorder, n=2; alcohol dependence, n=4, post-traumatic stress disorder, n=1). There was a paternal mental health problem recorded in two cases at time 1 (one recorded as depression and 1 as alcohol dependence) and seven cases recorded at time 2 (three recorded as depression and four as alcohol dependence). At time 1, it was not specified whether the parents were receiving any treatment for their mental health problems in 65% of the cases, decreasing to 43% of cases at time 2.

The use of self-report questionnaires. The number of questionnaires administered significantly increased from time 1 to time 2. Of the total sample (n=45), at time 1: 22% of

cases completed both the MFQ and the SDQ; 36% completed the SDQ only; and 1 person completed the MFQ only. At time 2: 31% completed the MFQ and the SDQ; 27% completed the SDQ and RCADS; 7% completed RCADS and MFQ; 13% completed the SDQ only; 1 person completed the MFQ only; 1 person completed the RCADS only.

Offering a specific psychological therapy. At both time points, approximately 70% were offered an evidence-based psychological intervention by the team treating them. The remaining cases were either offered counselling/supportive therapy instead (time 1: n= 6; time 2: n=5); did not attending further assessment (time 1: n=3; time 2: n=1); there was a clinical decision that they would not currently benefit from treatment (time 1: n=1; time 2: n=1); there was diagnostic uncertainty (time 1: n=1); they were referred to adult services (time 1: n= 2; time 2: n=1) or it was unclear from the notes whether or not they were offered treatment (time 1: n=1; time 2: n=1).

Of those that were offered an evidence-based psychological intervention, the majority accepted treatment (time 1: 84%; time 2: 85%). Of those that received an intervention (time 1: n=26; time 2: n=29), most received one psychological therapy (time 1: 61%; time 2: 55%), some received two (time 1: 26%; time 2: 38%) and a few received three (time 1: 13%; time 2: 7%). The most common first line psychological treatment offered was CBT (time 1: 81%; time 2: 58%), followed by family therapy (time 1: 12%; time 2: 28%). Family Therapy was the most common second line psychological treatment offered (time 1: 40%; time 2: 66% of cases that were offered two psychological interventions). No cases received IPT alone at either time point.

Antidepressant Medication. There was a significantly increase in the number of cases recorded as having previously taken or currently taking medication from time 1 to time 2. Of those cases that were prescribed medication, 60% at time 1 and 68% at time 2 were prescribed Fluoxetine (capsules or oral suspension) as their first medication. Approximately

half at both time points (time 1 = 50%; time 2 = 53%) were currently taking one medication and a less than a third (time 1 = 30%; time 2= 26%) were taking two different medications. Some cases were offered medication before there was evidence that they were offered psychological therapy (time 1: n=4; time 2: n=7).

Weekly contact for the first 4 weeks of treatment. There was no evidence that they were seen weekly by CAMHS when they were first prescribed medication for four (of 10) cases at time 1 and nine (of 19) cases at time 2 (this change was not significant, χ^2 (1) = 0.14, p>0.05). In addition, 3 of 10 cases (time 1) and 3 out of 19 (time 2) were prescribed medication by their GPs.

[INSERT TABLE 4]

Discussion

This study used anonymized electronic health records to investigate (1) who was being seen by CAMHS and (2) whether NICE guidelines for depression were being implemented, at two time points. Firstly, this study clearly indicated that the number of children and young people being assessed and treated for depression in CAMHS is substantially lower than would be expected from prevalence rates, particularly in the 0-11 age group. Access did appear to vary according to age, sex and ethnicity. There was no improvement across the time-points, in fact the percentages seen in the 12 to 18 age group decreased from 29% to 25%. Secondly, compliance to NICE guidelines was mixed. The vast majority of cases were appropriately assessed for risk and offered a recommended intervention, whilst some cases received inappropriate first line treatments. Across time-points, the use of questionnaires improved as well as documenting whether parental mental health issues were being addressed. The limited improvement across time points in terms of number of cases accessing services and receiving appropriate intervention is disappointing. However, the consistency in findings from time 1 to time 2 adds validity to our findings.

Number of Cases, Sex Ratio and Ethnicities

Our findings indicate that a large proportion of youth with depression are not being identified and treated. This is particularly noticeable in the 0 to 11 age group where only 2% of expected cases are accessing services. Findings in the 12 to 18 age group were consistent with evidence from the US that 75% of young people with mental health needs go undetected (Coyle et al., 2003). Interestingly, there were no cases in the pre-school age group (under age 5) at time-point 1 and eight cases at time-point 2. Studies have shown that depression is present in preschool children but only a small proportion are referred to treatment (for review see Whalen, Sylvester, & Luby, 2017).

There are a number of possible explanations for the low numbers of young people accessing services, including a lack of recognition, help-seeking and transfer of cases from primary care. Parental recognition of symptoms has been strongly associated with increased mental health service use for youth with depression (Breland et al., 2014; Wu et al., 2001) as well as a variety of other family factors, including parental problem perception and parent perception of need (Ryan et al, 2015). Yet research suggests that parent-child agreement on severity of depressive symptoms is low, with parents reporting significantly fewer symptoms than their child (Orchard, Pass, Marshall, & Reynolds, 2017). In terms of help-seeking, research suggests that only 18 to 34% of young people with anxiety or depression will seek professional help with barriers including mental health literacy, stigma and a preference for self-reliance (Gulliver, Griffiths, & Christensen, 2010). For parental help-seeking, research in the UK (Green, McGinnity, Meltzer, & Ford, 2004) indicated that 73% of parents of youth with emotional disorder sought help (64% sought professional help), most commonly from teachers (43%). However, only 24% of these parents contacted or were referred to mental health services, suggesting a gap in parents accurately raising concerns and accessing services.

Factors that may impact on transfer from primary to secondary care, include lack of providers and resources, extensive waiting lists and financial restrictions (O'Brien et al, 2016). Consistent with this, there is a large discrepancy in the number of young people being referred to CAMHS and actually receiving a service (Children's Commissioners Report, 2016). A lack of detection and treatment has implications for healthcare costs as research in the US demonstrates that youth who have depressive symptoms (even if mild) have higher healthcare utilization and costs – with the majority of costs not being attributable to mental health care (e.g. outpatient medical care, emergency department visits) (Wright et al., 2016). Interestingly, a recent study looking at the clinical characteristics referrals to a CAMH service suggested that the majority of referrals for depression did not meet diagnostic criteria (57%) (Orchard et al., 2017), also suggesting a need to improve assessment prior to referral.

There was some evidence that sex and ethnicity impact of the accurate identification of depression. A roughly equal sex ratio is expected in the 0-11 group yet the current sample had double the number of males to females. This may be due to differences in presentation between the sexes with boys showing more externalising symptoms than girls, as youth might be more likely to receive treatment for disruptive disorders (Cohen, Kasen, Brook, & Struening, 1991; Merikangas et al., 2011). Compared to what would be expected from population data, some ethnic groups were more represented in the sample ('any other black background'; any other ethnic group') whilst others were less represented in the sample ('Indian') consistently across the two time points. The simplest explanation for this is misreporting ethnicities on the electronic notes. More complex explanations may account for the possibility of different cultural narratives around depression and its manifestation (Iwata & Buka, 2002; Merikangas et al., 2011). Further research that can identify whether these findings reflect a reporting error or lack of access for some ethnic groups is needed. Our understanding could be enhanced by, for example, providing training on the correct reporting

of ethnicities for clinicians; asking young people or carers to specify their ethnicity from the ONS categories during first assessment; and outreach work into under-represented communities.

Compliance with NICE Guidelines

Adherence to NICE guidelines was generally good although there were areas where adherence was lacking. Compliance to NICE guidelines was consistent across time-points in considering parental mental health. Areas in which compliance improved between time-points were: documenting whether parents were receiving treatment for mental health difficulties, the use of questionnaires for assessment and a small increase in cases being offered psychological therapy. Only the increase in questionnaire use was statistically significant. This may reflect the introduction of CYP-IAPT between the two time points as questionnaire use and evidence-based psychological therapy are two key targets. It was perhaps surprising that cases were being offered counselling/supportive therapy at time 2 given the introduction of CYP-IAPT. However, counselling/supportive therapy is included in NICE guidelines for mild depression and a large scale RCT recently found no evidence that CBT or a short term psychoanalytic therapy were superior to a brief psychosocial intervention for maintaining reduction in depression symptoms (Goodyer et al., 2016).

There were also areas where compliance needs to be improved, including appropriate completion of the risk assessment and use of medication. From time 1 to time 2, there was a significant decrease in the number of cases that had a risk assessment completed appropriately and the number that had a full risk screen completed. This could be for a number of reasons including that this represents a genuine reduction in the level of risk seen in CAMHS (which seems unlikely, especially given research indicating high levels of risk in CAMHS; Orchard et al., 2017) or a change in reporting practices. The majority of cases at time 2 did have a risk screen completed somewhere in their notes but consistency needs to be

improved in order to standardize risk monitoring and communication between services. For example, if a young person transitions to adult services having readily accessible information on risk is crucial.

In terms of medication, there was a significant increase in the number of young people currently or previously taking medication; some of cases were offered medication before there was evidence that they were offered a psychological intervention; and only a few of the young people at both time points were monitored for the first 4 weeks of treatment. If NICE guidelines are being adhered to, an antidepressant should only be prescribed following assessment and diagnosis by a child and adolescent psychiatrist and so the vast majority of cases that begin antidepressants should be in CAMHS, rather than in primary care. However, GPs may also prescribe antidepressants particularly given that accessing CAMHS is so challenging and that young people are presenting with high levels of risk. For example, one study found very high rates of suicidal ideation in CAMHS referrals (Orchard et al., 2017). Further investigation of prescribing practice (and reasons for prescribing) in primary care would be highly valuable.

Service-related questions and limitations

There is huge variation in the NHS in how health records are documented and whether they can be accessed anonymously for research. The systematic electronic recording of data in the Trust sampled made this audit possible. Sampling this type of data allows for improved understanding of who is being seen by which services and whether NICE guidelines are being implemented for young people with depression, which is crucial to guide policy and service development. This audit was completed in a large NHS Trust that is likely to be highly representative of other NHS trusts, so these findings are likely to be illustrative of UK services. One service–related question raised by this audit is what can be usefully and

realistically recorded on electronic notes. Meticulous recording is time consuming and a compromise needs to be found between recording information and clinical time.

This study documented an increase in maternal (33% to 50%) and paternal (n=2 to n=7) mental health issues from time-point 1 to 2. Depression starts earlier and is associated with poorer prognosis for young people who have parents with an affective disorder (Thapar et al., 2016). Treating parental mental health difficulties in parallel should be a priority as it has proven impact on the child's prognosis, likelihood to seek help and successful treatment (Sherman & Ali, 2017). This raises service level questions about how to assess parental mental health and which services should provide treatment for the parents. There are several well-established brief measures (e.g. Patient Health Questionnaire, Kroenke, Spitzer, & Williams, 20011; Generalised Anxiety Disorder Assessment, Spitzer et al, 2006) that could provide quick and quantitative measures of parental mental health. The possibility of structuring services so that parental and child mental health can be treated in parallel would be valuable to explore.

This study has several limitations, including reliance on clinician reporting and a lack of access to primary care records. Whilst CRIS provides anonymized and regulated access to electronic records, it does rely on correct recording and use of electronic records by clinicians. Here, we made a considered decision about which guidelines we could expect to be completed and which we would hand search the records for. This may have led to adherence being over or under estimated in some cases. In terms of the number of cases seen by services, the diagnosis section is compulsory so should have been filled in for every case. However, a limitation of this audit is whether the prevalence rates used refer to the same clinical population seen by services. It is commonly acknowledged that there is variation in estimated prevalence rates and in which depressive diagnoses are included in prevalence studies, with "any mood disorder" often including dysthymia and bipolar affective disorder

(Costello et al., 2006; Polanczyk et al., 2015). Here, we choose to exclude bipolar affective disorder and dysthymia as the NICE guidelines 2005 make it clear that for prevalence they refer to depression diagnoses only and studies have found that excluding dysthymia and bipolar affective disorder does not make a substantial difference to prevalence estimates (Costello et al., 2006).

A related limitation is that we only had access to clinical records from secondary care and therefore do not know how many children and young people are being seen in primary care. This means that those young people with mild depression who may see professionals, such as school nurses, GPs and counselling services, are not captured by this audit. However, it is very unlikely that our findings underestimate the percentage of young people with depression seen in services because we utilised prevalence rates from the NICE guidelines, which are known to be highly conservative. It would be useful for future research to investigate how many young people with depression are identified and remain in primary care and the types of interventions offered to them.

This audit suggests recommendations both for the individual Trust but also for youth services more generally, given that the results are likely to be generalizable. There is clearly a significant need for increased recognition and treatment of depression in youth. This could include psycho-education about depression in schools and for parents but also development of service structures to improve access to intervention. In terms of compliance, the results have been communicated to managers and clinicians within the Trust audited. Suggestions to enhance recording on the electronic case record system include clearer guidance on mandatory fields, possibility of adding functionality to remind clinicians of essential fields and NICE guidance more fully integrated into the system. Other recommendations that could improve care would be to have more integrated treatment pathways (and services) for adult and child mental health issues and to offer psychological intervention before medication.

Government initiatives to introduce CYP-IAPT and, more recently, to improve access to provide early intervention for mental health in schools (Secretary of State for Health and Secretary of State for Education, 2017) do aim to target many of the issues raised by this audit. Future research that can identify whether these initiatives have improved access and provision would be valuable, as well as research that can disentangle whether the issues raised in the current study are recording issues or issues in implementing NICE guidelines. An essential aspect of service transformation will be to incorporate systems that allow regular evaluation so that compliance to NICE guidelines can be monitored more consistently across the UK.

Conclusions

This study suggests that depression in children and young people is significantly under-detected and under-treated. In particular, only a small number of children aged 0 to 11 with depression are being seen by services. The number of cases with a depression diagnosis in CAMHS did not change across time points. Once cases of depression were identified by services, adherence to evidence-based guidelines appeared good, although there are areas where it could be improved.

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Table 1: Search strategies used for each targeted NICE recommendation

The targeted NICE recommendation	Search strategy	
	Specific fields extracted	**Hand searching event notes.**
Past and present risk factors **should be assessed and recorded in the notes.**	Yes	Yes
Parents' own psychiatric problems **should be considered and treated in parallel**	Yes	Yes
Screening instruments: **a self-report questionnaire for depression (recommended measure: Mood and Feelings Questionnaire) should be used in the general assessment procedure.**	Yes	Yes
Offering a specific psychological therapy: **as a first-line treatment for moderate to severe depression offer a specific psychological therapy - CBT, IPT or shorter term of family therapy.**	No	Yes
Antidepressant medication **should not be offered except in combination with a concurrent psychological therapy. When an antidepressant is prescribed, it should be fluoxetine. If treatment with Fluoxetine is unsuccessful, consider second line medication treatment with Sertraline of Citalopram and monitor closely.**	Yes	Yes
Weekly contact for the first 4 weeks of treatment: **arrangements must be made for careful monitoring after the start of pharmacological treatment. This can be achieved by weekly contact with the patient for the first 4 weeks of treatment.**	No	Yes

Table 2: Number of cases and sex ratios in the sample compared to what would be expected according to prevalence and population data. ONS data indicated roughly equal numbers of male and females in each age group for this population so the expected sex ratios would be 1:1 for the 0 to 11 group and 2:1 for the 12 to 18 group.

Time point	Age	Population	Number of cases of depression		Cases seen by services per sex		
			Expected	Seen by services	Female	Male	Ratio (Female/Male)
TIME 1	0 to 11	179,136	1791[1]	39 (2%)	13	26	0.50
	12 to 18	83964	2519[2]	731 (29%)	500	231	2.16
	Total	263,100	4310	770 (18%)	513	257	2.00
TIME 2	0 to 11	202911	2029[1]	38 (2%)	12	26	0.46
	12 to 18	94016	2820[2]	695 (25%)	504	191	2.64
	Total	296927	4849	733 (15%)	516	217	2.38

[1]Based on a prevalence rate of 1% in 0 to 11 age group

[2]Based on a prevalence rate of 3% in 12 to 18 age group

Table 3: Ethnicity at each time point, compared to expected ethnicities of the population sampled.

Ethnicity	**ONS data**	**Time 1**	**Time 2**
African	8.18%	4.68%	4.77%
Any other Asian background	1.47%	2.21%	1.77%
Any other black background	1.44%	11.69%	11.60%
Any other ethnic group	1.39%	6.75%	5.46%
Any other mixed background	1.05%	1.17%	3.00%
Any other white background	7.12%	5.84%	7.37%
Bangladeshi	1.10%	0.26%	0.95%
White British	57.70%	47.01%	41.75%
Caribbean	8.49%	4.55%	4.64%
Chinese	2.13%	0%	0.41%
Indian	4.21%	0.26%	0.68%
Irish	2.03%	0.39%	0.82%
Pakistani	2.04%	0.52%	3.14%
White and Asian	0.98%	1.30%	0.82%
White and Black African	0.66%	1.56%	0.55%
White and Black Caribbean	1.44%	0%	0.00%
Missing ethnicity		10.00%	4.37%
Not Stated		1.82%	6.28%

Table 4: Summary of key findings for each targeted NICE recommendation at both time points and comparison using chi-squared tests.

Targeted NICE recommendation	**Time 1 (n=45)**	**Time 2 (n=45)**	**χ^2 statistic (df=1)**	**p-value**
Risk assessment appropriately completed	43	30	12.26	**p<0.001**
Cases requiring a full risk screen	13	5	4.44	**p<0.05**
Consideration of parental mental health	43	42	0.21	p>0.05
Parental mental health issues identified	15	23	2.91	p>0.05
Self-report questionnaire administered	28	37	4.49	**p<0.05**
Evidence-based psychological intervention offered	31	34	0.50	p>0.05
Currently or previously prescribed antidepressant medication	10	19	4.12	**p<0.05**